

CLAIMS

1. Optical component comprising at least two layers, characterized by a retarder (4, 11b, 12b, 21b, 22b, 23b, 31, 41, 51, 74) and a polarizer (2, 13, 24, 25, 33, 42, 43, 52), the
5 retarder (4, 11b, 12b, 21b, 22b, 23b, 31, 41, 51, 74) having at least two regions with different optical axes.
2. Optical component according to Claim 1, characterized in that the retarder (4, 11b, 12b, 21b, 22b, 23b, 31, 41, 51, 74) comprises an anisotropic layer (4) comprising cross-linked liquid-crystal monomers.
- 10 3. Optical component according to Claim 2, characterized in that the retarder (4, 11b, 12b, 21b, 22b, 23b, 31, 41, 51, 74) is placed on an orientation layer (3, 11a, 12a, 21a, 22a, 23a, 32, 44, 75) and in that the orientation layer (3, 11a, 12a, 21a, 22a, 23a) is in contact with a polarizer (2, 14, 11b, 12b, 21b, 22b, 23b).
4. Optical component according to Claim 2 or 3, characterized in that the orientation
15 layer (3, 11a, 12a, 21a, 22a, 23a) comprises a photo-oriented polymer network (PPN).
5. Optical component according to any one of Claims 2 to 4, characterized in that the polarizer is structured.
6. Optical component according to any one of Claims 2 to 5, characterized by a linear polarizer placed on a substrate (1, 8).
- 20 7. Optical component according to Claim 6, characterized in that a second polarizer (13, 24) is arranged over the liquid-crystal layer (11b, 21b) and a further orientation layer and further liquid-crystal layer (12a/12b; 22a/22b) are arranged over this second polarizer, and in that the second liquid-crystal layer is also structured.
8. Optical component according to Claim 7, characterized in that a further polarizer
25 (25) is arranged over the second liquid-crystal layer (22b), and a third orientation layer and a third liquid-crystal layer (23a/23b) are arranged over this further polarizer, and in that the third liquid-crystal layer is also structured.
9. Element for protection against forgery and/or copying, characterized by an optical
30 component according to any one of Claims 2 to 8 and an external linear or circular polarizer (5, 14, 28, 27), the liquid-crystal layer encoding information which can be analyzed using the external polarizer (5, 14, 28, 27).

10. Element according to Claim 9, with an optical component according to Claim 7 or 8, characterized in that the at least two liquid-crystal layers each encode a partial information content which together form a total information content.
11. Element according to Claim 9 or 10, the liquid-crystal layer being designed as a retarder and being placed on a substrate (1, 8), characterized in that the substrate encodes a part of the total information content.
12. Element according to Claim 9, 10 or 11, characterized in that the external linear polarizer is structured, and both the liquid-crystal layer and the external polarizer each encode part of the total information content.
- 10 13. Optical component according to any one of Claims 2 to 5, characterized by at least one circular polarizer (33, 43, 53).
14. Optical component according to Claim 13, characterized by two circular polarizers (40, 43) arranged one above the other, one of which rotates to the left and the other of which rotates to the right.
- 15 15. Element for protection against forgery and/or copying, characterized by an optical component according to Claims 13 or 14 and an external linear or circular polarizer (53, 64, 76) for analysing the encoded information.
16. Optical component comprising an optically anisotropic layer which is formed by liquid-crystal molecules, characterized in that the optically anisotropic layer contains
- 20 fluorescent molecules.
17. Optical component according to Claim 16, characterized in that the optically anisotropic layer has at least two regions with different optical axes.
18. Element for protection against forgery and/or copying, characterized by an optical component according to Claim 16 or Claim 17.
- 25 19. Optical component comprising at least two layers, characterized by a cholesteric layer (61, 73) and a linear polarizer (63, 72).
20. Optical component according to Claim 19, further characterized by an optically anisotropic layer (74).
21. Optical component according to Claim 20, characterized in that the optically
- 30 anisotropic layer (74) has regions with different optical axes.
22. Optical component according to Claim 20 or Claim 21, characterized in that the optically anisotropic layer (74) is formed of cross-linked liquid crystal molecules.

23. Optical component according to any of Claims 20 to 22, characterized in that the cholesteric layer (61, 73) and the optically anisotropic layer (74) are on the same side of the linear polarizer (63, 72).
24. Optical component according to any of Claims 19 to 23, characterized in that the linear polarizer (63, 72) is in contact with the cholesteric layer (61, 73).
25. Optical component according to any of Claims 20 to 23, characterized in that the linear polarizer (63, 72) is in contact with the optically anisotropic layer (74).
26. Optical component according to Claim 19, the linear polarizer (63, 72) being arranged on a substrate (62, 71), characterized in that the cholesteric layer (61, 73) is in contact with the linear polarizer (63, 72), and an orientation layer (75) is placed on the cholesteric layer (61, 73), and an optically anisotropic layer (74) of cross-linked liquid-crystal monomers is placed on the orientation layer, and in that the liquid crystal layer (74) forms regions with different molecular orientations.
27. Element for protection against forgery and/or copying, characterized by an optical component according to any of Claims 19 to 26 and an external linear polarizer (64, 76) for analysing the information encoded in the liquid-crystal layer (74) and/or in the cholesteric layer (61, 73).
28. Optical component, containing a birefringent liquid-crystal layer which has at least two regions with different optical axes, characterized in that the optical delay of the liquid-crystal layer in the individual regions depends differently on the angle of observation.
29. Optical component according to Claim 28, characterized in that it is designed in such a way that the colour of the element on observation through a polarizer differs locally.
30. Optical component according to Claim 28 or 29, characterized in that it is biaxial.
31. Optical component according to Claim 30, characterized in that the birefringent liquid-crystal layer is biaxial.
- Element for protection against forgery and/or copying, characterized by an optical component according to any one of Claims 28 to 31.
- Element for protection against forgery and/or copying, comprising a polarizer layer which has at least two regions with different polarization directions.

Element for protection against forgery and/or copying, being arranged on a substrate and comprising an optically anisotropic layer which has at least two regions with different optical axes, characterised in that the substrate is a reflective polarizer.

- Device for protection against forgery and/or copying, characterized in that an element
5 according to one of Claims 9, 10, 11, 12, 15, 18, 27, 32, 33 or 34 and an analyzer are arranged on the same substrate.